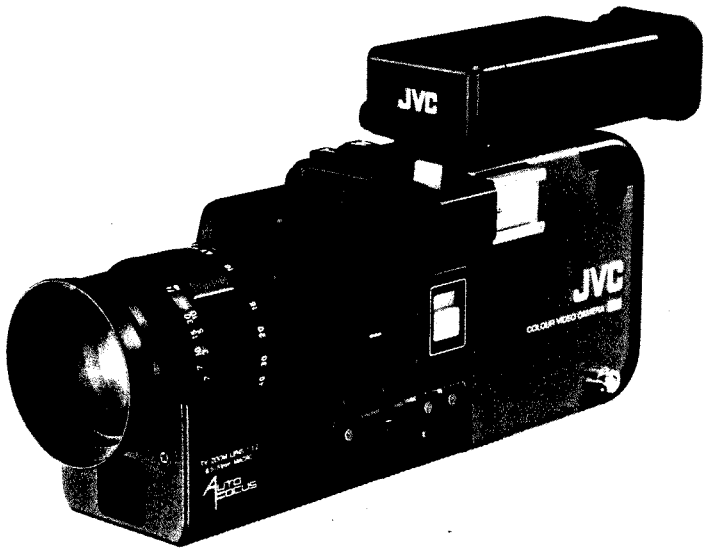
JVC

Instruction Book
Bedienungsanleitung
Manuel d'instructions
Gebruiksaanwijzingen

# COLOUR VIDEO CAMERA
# FARB-VIDEOKAMERA
# CAMERA VIDEO COULEUR
# KLEURENVIDEOKAMERA

# GX-N8E



## WARNING:

**TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**

**CAUTION:**
To prevent electric shocks and fire hazards, do NOT use other than specified power source.

## CAUTION

To prevent electric shock, do not disassemble the camera. No user-serviceable parts inside. Refer servicing to qualified service personnel.

## VIDEO STANDARD

This camera GX-N8E is designed to produce a PAL type video signal. Equipment using standards other than PAL cannot be connected with this camera. Inquiries on any difficulties concerning connection and use of related VTR units should be forwarded to a JVC Authorized Service Station or JVC Service Dept.

When using the camera to record important events such as weddings, be sure to make a test recording first to check that the picture and sound are recorded normally. In this way you will not be let down by your camera, recorder or video tape when the chance to record the event will never be repeated.

*** This Instruction Book is divided into four sections, English, French, German and Dutch:**


- **English** . . . . . **Pages 1 – 22**
- **German** . . . . . **Pages 23 – 44**
- **French** . . . . . **Pages 45 – 66**
- **Dutch** . . . . . **Pages 67 – 88**


Thank you for purchasing this JVC Colour Video Camera. To obtain the best results from your GX-N8E, read this instruction book carefully before use; after reading it, retain it for future reference.

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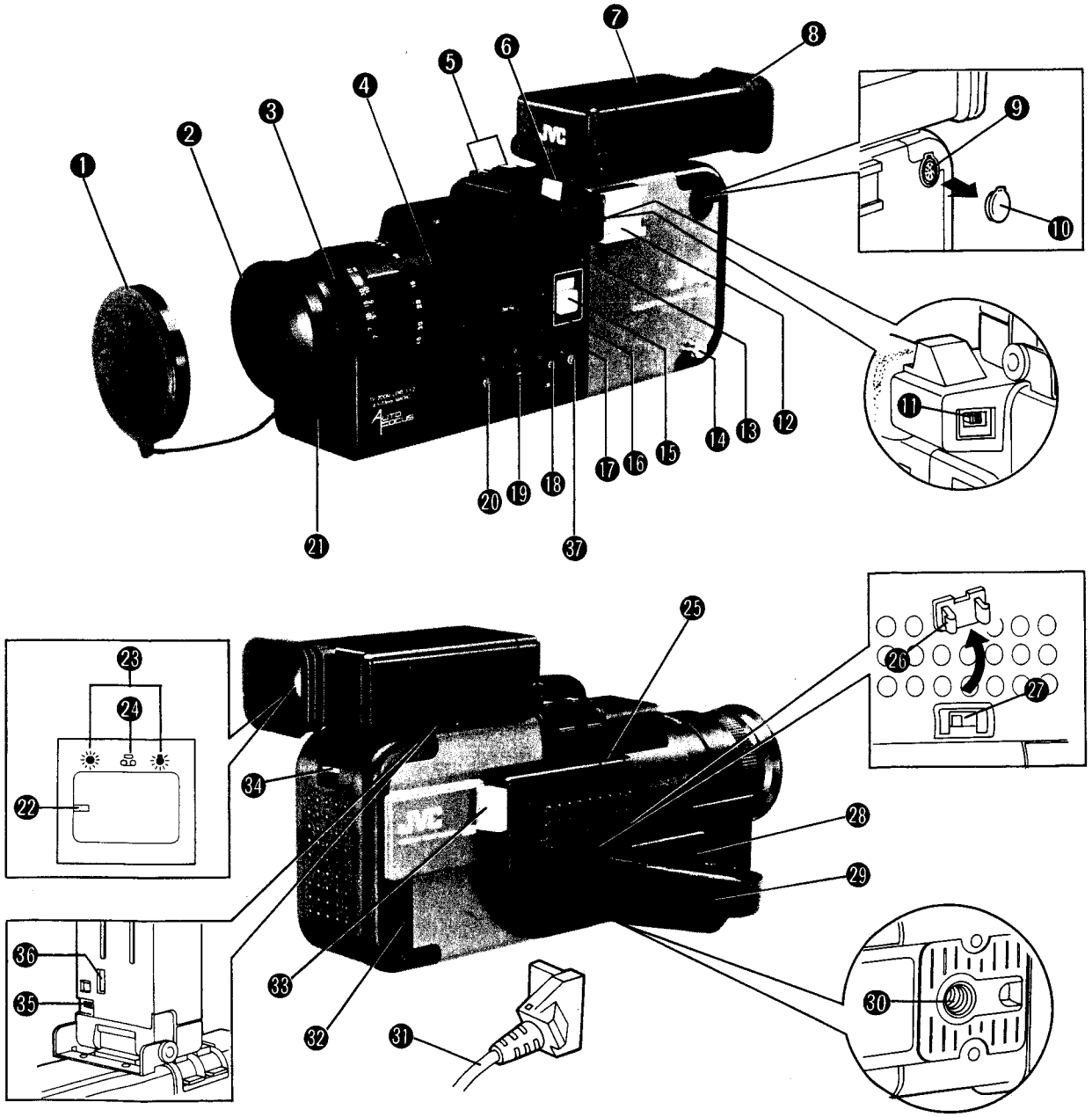
# FEATURES

- Minimum illumination of 10 lux on subject being shot.
- Parallax-free semi-TTL Active Infrared Auto-Focus system.
- Auto Colour Tracking white balance adjustment.
- Auto Iris Control, 6:1 power zoom lens with Macro function.
- Special bayonet lens mount.
  Interchangeable with lenses for SLR (single lens reflex) cameras using optional mount adaptors.

# PRECAUTIONS

- Do not aim the camera lens at extremely bright objects such as the sun or other strong light sources, even when not in use or switched off, as well as during shooting or recording. Incorrect use could damage the pickup tube. Always be sure to keep the lens capped except during shooting.
- Do not shoot bright bodies such as metal objects, etc. which reflect light, as this can result in not only bad pictures but damage to the pickup tube.
- Select a light source which generates less heat and prevent its beam from shining directly on the camera. Otherwise heat from the light may deform the camera body or components, or cause malfunctioning.
- Apply power and operate the camera 1 or 2 hours every 6 months. The pickup tube will loose efficiency with age if the camera is not used for too long a time.
- Do not disassemble any part of the camera; high voltages are developed in some parts of the camera and it is dangerous to touch them because of the possibility of electric shock.
- Do not allow inflammable objects, metal objects or water to get inside the camera, as these can cause damage or malfunctioning.
- Do not try to tighten or loosen the screws in the several servicing holes of the camera body and viewfinder. These are only for experienced service personnel.
- Avoid using the camera in places where it is excessively hot, humid or cold or where there are strong electric and magnetic fields which can create electrical noise, or where it is liable to catch fire. Be careful not to subject the camera to excessive shock or vibration, as these could cause distorted pictures, damage or malfunctioning.
- Do not leave the camera inside a parked car as the temperature can become extremely high when exposed directly to the sun with the windows shut. This can cause plastic parts to be deformed and result in malfunctioning.

# NAMES OF PARTS



❶ Lens cap
❷ Lens hood
❸ Focus ring
❹ Zoom lever
❺ Zoom buttons
❻ Colour temperature sensor window
❼ Viewfinder
❽ Eye cup
❾ Accessory socket
❿ Socket cap
⓫ Stereo/Monaural switch
⓬ Accessory shoe
⓭ Microphone
⓮ Lug for accessory
⓯ Full auto switch
⓰ White balance switch
⓱ Focus switch
⓲ Fader button
⓳ Iris control knob
⓴ Iris lock button
㉑ Infrared receiver
㉒ Exposure indicator
㉓ White balance setting indicators
㉔ VTR start indicator
㉕ Lens release button
㉖ Switch cover
㉗ VTR polarity switch
㉘ Grip cover
㉙ Grip band
㉚ Tripod mounting hole
㉛ Camera cable
㉜ Camera cable socket
㉝ VTR start/stop button
㉞ Hook for shooting strap (optional)
㉟ Diopter adjustment knob
㊱ Diopter adjustment indicator
㊲ Power button

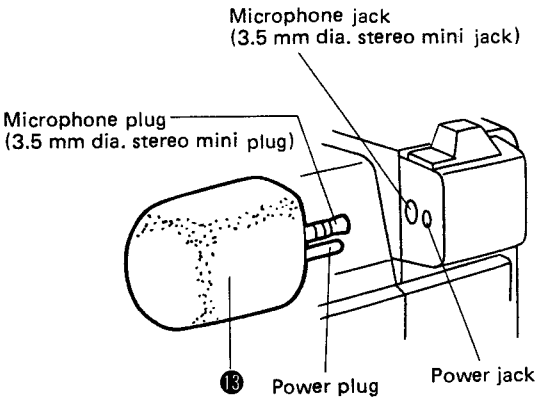
# HOW TO SET UP THE CAMERA

## 1 HOW TO INSTALL THE MICROPHONE

Insert the microphone plug of provided microphone ⑬ into the microphone jack, and insert the power plug into the power jack at the same time.

**Notes:**

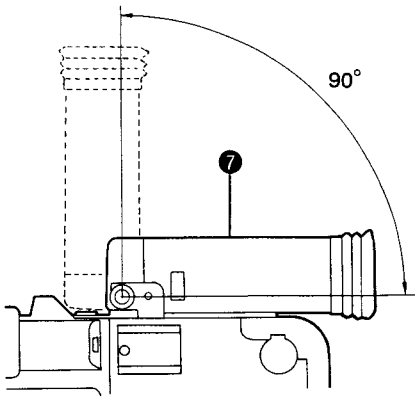
- Confirm that provided microphone ⑬ is fully inserted.
- The power jack is exclusively for use with provided microphone ⑬ ; do not insert other plugs into it.




## 2 HOW TO ADJUST THE VIEWFINDER POSITION AND ENLARGE THE SCREEN IMAGE

■ **Adjusting Viewfinder Position**

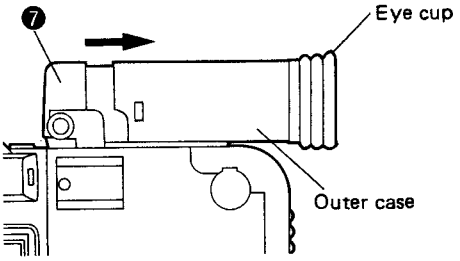
The viewing angle of viewfinder ⑦ can be adjusted within the range shown in the illustration.




■ **Magnifying the Viewfinder Screen Image**

Slide the outer case of viewfinder ⑦ in the direction of the arrow until it clicks into its locked position to magnify the viewfinder screen image.

**Note:** To return the outer case to its original position, tap the eye cup in the opposite direction, and then push the case back to its original position.



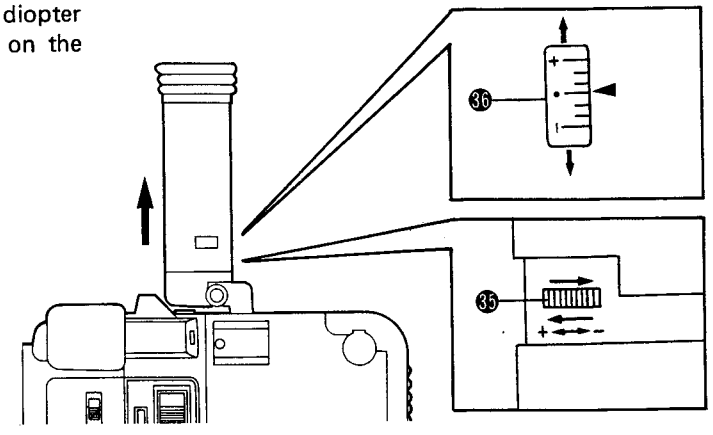

■ **How to Use the Diopter Adjustment Knob**

While observing an image on the viewfinder screen, turn diopter adjustment knob ㉟ toward the + or - side for best resolution.

**- side:** Turn toward the - side to adjust the image for short-sightedness. (Diopter adjustment indicator ㊱ moves to the - side.)

**+ side:** Turn toward the + side to adjust the image for far-sightedness. (Diopter adjustment indicator ㊱ moves to the + side.)

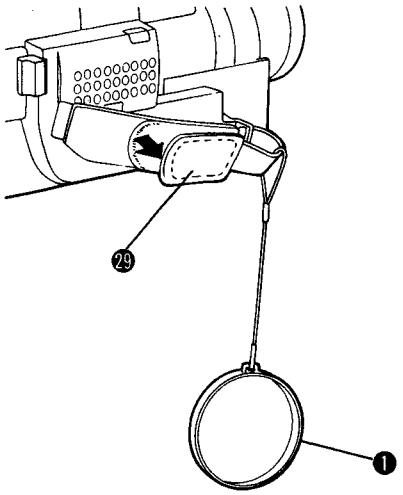
**Note:** The diopter adjustment knob ㉟ and diopter adjustment indicator ㊱ are located on the underside of the viewfinder.

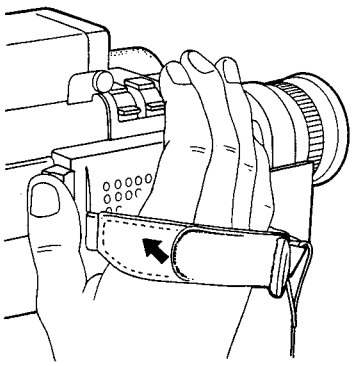


## 3 HOW TO ADJUST THE GRIP BAND

(1) Detach the end of grip band ㉙ from the end fixed to the camera, and loosen the band.
(2) With your right hand inside grip band ㉙ , pull the end to the left to tighten it, and then press the Velcro pieces together.

**Notes:**
- Confirm that the Velcro pieces are together firmly.
- Looping the lens cap ❶ string around the grip band ㉙ facilitates uncapping and capping the lens (without the loss of the lens cap).



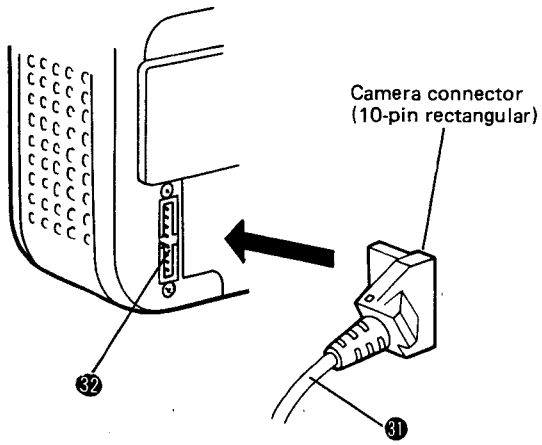



## 4 HOW TO INSTALL THE CAMERA CABLE

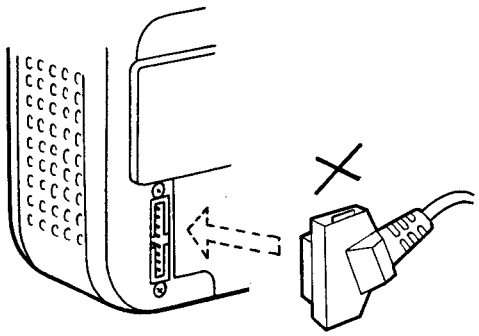
(1) First align the key ( ⏃ ) on the camera connector of provided camera cable ㉛ with the groove ( ⏁ ) in camera cable socket ㉜ .
(2) Insert the connector into the socket ㉜ .
- Never attempt to force the 10-pin rectangular camera connector of provided camera cable ㉛ into the camera cable socket when the connector is positioned upside down.

**Note:**
When removing the camera connector, grip the camera connector, not the cable.

**Proper connection**




**Improper connection**



# HOW TO CONNECT TO A VTR

- Do not switch the camera and VTR on before connecting to the VTR.
- Refer to the instruction manual of the VTR and other components to be connected.

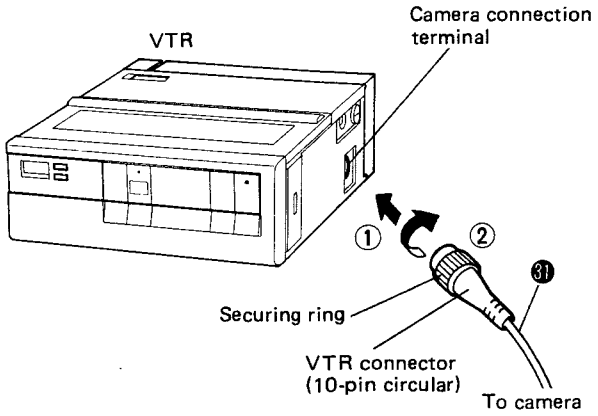
## 1 WHEN THE VTR HAS A CAMERA CONNECTION TERMINAL

(When Using the Camera Connection Terminal)

(1) Insert in the direction of arrow ①, matching the groove (凹) in the VTR connector (10-pin circular) with the key (凸) in the camera connection terminal of the VTR body.

(2) Secure by tightening the ring in the direction of arrow ②.

**Note:** Power is supplied to the camera from the VTR.




## 2 WHEN THE VTR DOES NOT HAVE A CAMERA CONNECTION TERMINAL

(When Using the Video Input and Audio Input Terminal)

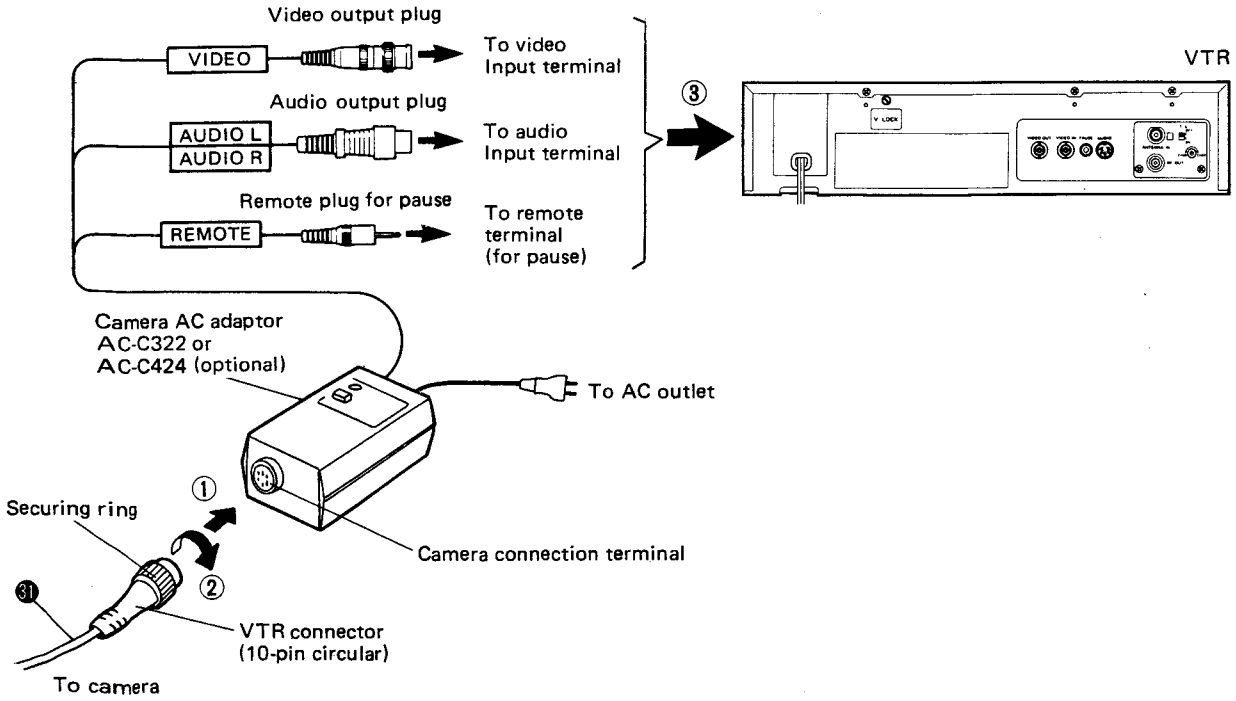
(1) Insert in the direction of arrow ①, matching the groove (凹) in the VTR connector of provided camera cable 31 with the key (凸) in the camera connection terminal of camera AC adaptor AC-C322 or AC-C424 (optionally available).

(2) Secure by tightening the ring in the direction of arrow ②.

(3) Connect the plugs of the camera AC adaptor to the appropriate terminals of the VTR as illustrated below.

**Notes:**

- Power to the camera is supplied from the camera AC adaptor.
- Also refer to the camera AC adaptor's instruction manual.

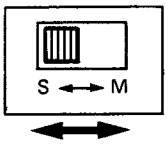


## 3 HOW TO USE THE STEREO/MONAURAL SWITCH

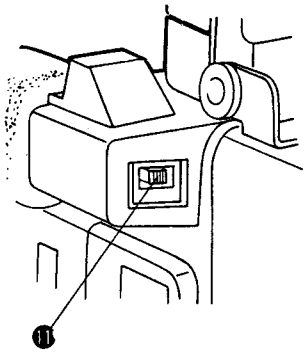
With a stereo microphone, set Stereo/Monaural switch ⓫ to the S position when the VTR is capable of stereo audio recording, and set it to the M position when the VTR is monaural audio.

**Notes:**

- Provided microphone ⓭ is stereo.
- With a monaural microphone, it is only possible to make monaural recordings.



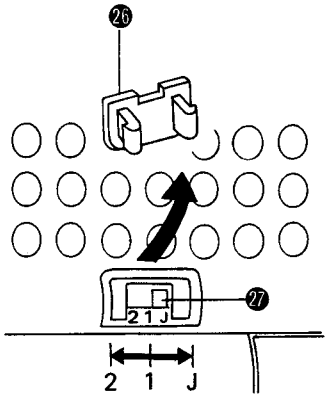

**Position S:** Set switch ⓫ to this position when the VTR is capable of stereo recording. Stereo sound can be recorded by a VTR capable of recording in the stereo audio recording mode.
(The switch should be set to this position when using the stereo feature of the supplied microphone.)




**Position M:** When the VTR is monaural, set Stereo/Monaural switch ⓫ to this position.
(The switch should be set to this position when using the monaural feature of the supplied microphone.)

## 4 HOW TO USE THE POLARITY SWITCH

This switch ㉗ enables the operation of VTR start/stop button ㉝ to match (be compatible with) the operation of VTR start indicator ㉔.
(For VTR start/stop button ㉝ and VTR start indicator ㉔, see pages 14 and 15 respectively.)
When the VTR start indicator ㉔ operates opposite to the VTR start/stop button ㉝ or functions with opposite polarity, or when the operation of the VTR start/stop button ㉝ is impossible, reset this switch ㉗ to the other position to see if the indication of the VTR start indicator ㉔ matches the operation of the VTR start/stop button ㉝.




(1) Remove the polarity switch cover ㉖.
(2) Set the polarity switch ㉗ to the other position.
Confirm that the operation of the VTR start/stop button ㉝ matches the operation of the VTR start indicator ㉔.

**Notes:**

- This camera is delivered with switch ㉗ preset to the "J" position.
- If the VTR start indicator ㉔ does not operate normally or the connected VTR does not function properly, contact your JVC dealer or the service department.

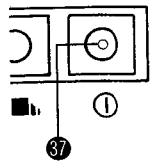
# HOW TO OPERATE THE VIDEO CAMERA

## 1 HOW TO SUPPLY POWER

- When connected to a VTR with a camera connection terminal. (See "1 WHEN THE VTR HAS A CAMERA CONNECTION TERMINAL" in "HOW TO CONNECT TO A VTR" section on page 6.)
  Power is supplied to the camera when the VTR is switched on.

**■ When connected to JVC HR-S10 VTR**

In this case, it is possible to switch the VTR on from the camera.




① Push POWER button ㊲ to switch the VTR on.
② Push it again to switch the VTR off.
Power is supplied to the camera when the VTR is switched on.

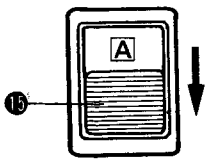
**Note:** Switching the VTR on from the camera is possible only when connected to a JVC HR-S10 VTR. (Several versions of the JVC HR-S10 VTR are available at video shops: the HR-S10E, HR-S10EK, HR-S10EG, HR-S10EA, HR-S10ES, etc. If you wish to purchase this type of the VTR, you should select the model conforming to the TV standards established in the country or area in which you will use the equipment. To determine the specific version VTR, consult your JVC dealer or qualified personnel.)

- When connected to a VTR with no camera connection terminal. (See page 6.)
  Power is supplied to the camera when the AC adaptor is switched on.

**Notes:**

- Power supply to the camera may be different according to the type of VTR connected. Refer to the VTR's instruction manual for details.
- Be sure to remove the lens cap ❶ only after supplying power to the camera, and do not forget to switch off the power supply after replacing the cap. Do not aim the lens directly at the sun or other strong light sources. Incorrect use could damage the pickup tube.

## 2 HOW TO USE THE FULL AUTO SWITCH




For normal shooting, by only setting switch ⓯ to the A position, the iris, focus and white balance (colour temperature) are automatically and simultaneously adjusted, regardless of the position of focus switch ⓱, white balance switch ⓰ and iris control knob ⓳.

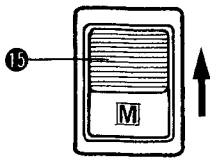
**A position:** When switch ⓯ is set to this position, the iris, focus and white balance will be automatically adjusted as follows:

**Iris:** Adjusted to correspond to the brightness of the object. (Auto iris control)

**Note:**
When the scene is dark, the auto gain up circuit is activated.

**Focus:** Adjusted according to the distance between the camera and object. (Auto focus control)
(Also refer to the instructions on page 10.)

**White balance (Colour temperature):** Adjusted by white balance auto tracking system; the built-in colour temperature sensor circuit (behind the sensor window ❻) senses and tracks changes in the colour temperature of the lighting surrounding the camera.
Automatic colour temperature adjustment in this system ranges from about 3,200 K to 5,500 K.
(Also refer to the chart on page 13.)




**M position:** When switch ⓯ is set to this position, the functions of the iris, focus, and white balance (colour temperature) will be as follows:

| | |
|---|---|
| Iris: | Iris adjustment will be performed using the iris control knob ⓳. (Also see "How to Use the Iris Control Knob".) |
| Focus: | Focus adjustment operation will depend on the position of focus switch ⓱. (Also see "How to Use the Focus Switch".) |
| White balance: (Colour temperature) | White balance (colour temperature) setting will depend on the position of white balance switch ⓰. (Also see "How to Operate the White Balance Switch".) |

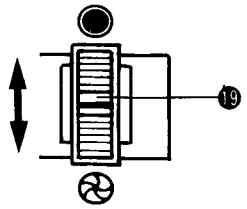
**Note:** Concerning exposure indicator ㉒, white balance setting indicator ㉓ and others in the viewfinder, see page 15.

## 3 HOW TO USE THE IRIS CONTROL KNOB

Iris control knob ⓳ functions only when the full auto switch ⓯ is set to the M position.
The iris setting can be changed by turning iris control knob ⓳ with the full auto switch ⓯ set to the M position.

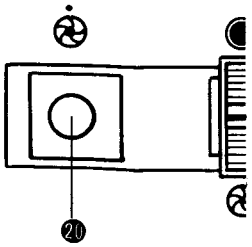
**● Side:** Turn iris control knob ⓳ upward to make the picture brighter (the aperture opens).

**⊛ Side:** Turn iris control knob ⓳ downward to make the picture darker (the aperture closes).




**Note:**
- The knob ⓳ is designed with a click-stop center position (standard position).
- Iris is automatically adjusted corresponding to the brightness of the scene with the exposure balance being determined by the position of iris control knob ⓳ setting.
- Iris control knob ⓳ can be used as a backlight compensation control: when the background is brighter than the subject, turn knob ⓳ upward to bring the subject into proper exposure. When the background is dark and the subject exhibits halation, turn knob ⓳ downward to restore proper exposure to the subject.
- The auto gain up circuit that adjusts the exposure when the scene is dark, does not operate when switch ⓳ is functioning.
- For information about exposure indicator ㉒ and other indicators, see page 15.

## 4 HOW TO USE THE IRIS LOCK BUTTON



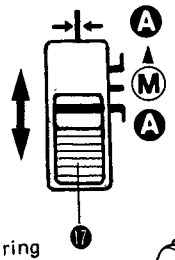

This button ⓴ functions only while keeping it pressed. (The iris setting is constant at this time.)

(1) First adjust the iris to your preferred setting:

| | |
|---|---|
| For auto iris control: | Set full auto switch ⓯ to the A position, and the iris setting for the aimed-at subject will be automatically obtained. |
| For manual iris control: | Set full auto switch ⓯ to the M position, re-adjusting the settings of Focus switch ⓱ and white balance switch ⓰ if necessary, and turn iris control knob ⓳ to obtain the iris setting you prefer. |

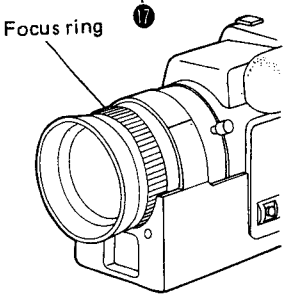
(2) To lock the iris mechanically:
Next, press the iris lock button ⓴, then the iris setting will remain fixed until the button is released. The fixed iris setting will not change as long as the button is pressed, even when the iris control mode is switched from manual to auto or even if the brightness of the aimed-at subject changes.

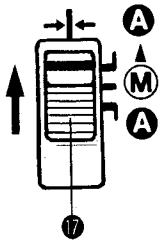
## [5] HOW TO USE THE FOCUS SWITCH




Focus switch ⓱ functions only when full auto switch ⓯ is set to the [M] position.
While full auto switch ⓯ is set to the [A] position, focusing will be automatic regardless of the position of focus switch ⓱ . With full auto switch ⓯ in the [M] position use focus switch ⓱ as follows.

**Lower Ⓐ position:** Set focus switch ⓱ to this position to focus automatically.
**Manual Ⓜ position:** Set focus switch ⓱ to this position to focus manually, and then turn focus ring ❸ to bring the subject into focus.

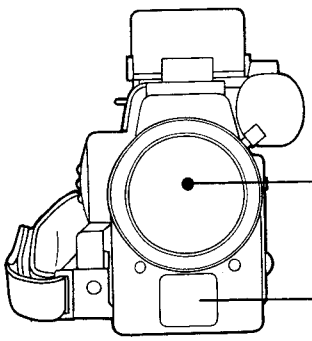



### ■ How to Operate POWER FOCUSING

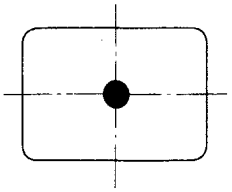
**Upper Ⓐ position:** (1) Hold focus switch ⓱ pushed up in this position for POWER FOCUSING (instant auto focusing).
(2) Release switch ⓱ to return to MANUAL FOCUSING. After releasing switch ⓱ it will return automatically to its manual Ⓜ position.

### ■ How the Auto Focus System Works and How to Operate It



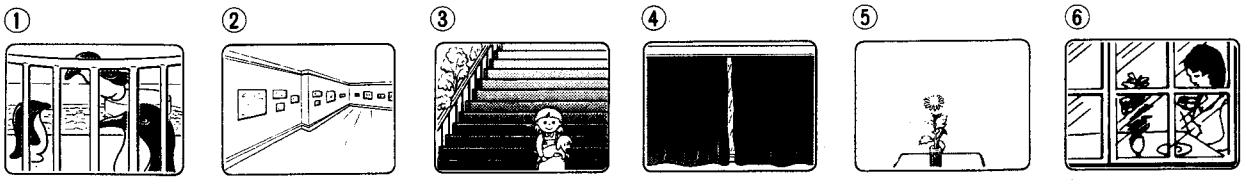

The GX-N8E has a semi-TTL (through-the-lens) active infrared auto focus system designed to focus on the subject automatically. This camera transmits infrared rays from just above the centre of the lens. These rays hit the subject and are reflected to the infrared receiver on the front of the camera which in turn calculates the optimum focus automatically.

### Important Points in Shooting



- The camera is designed to focus on the subject in the centre of the field of view.
- The subject must be more than 10 centimeters (4 inches) across when 3 meters (10 feet) away from the camera for correct operation of the auto-focus system.
- The camera does not focus correctly when the MACRO function is used.
- While using AUTO FOCUS, be careful not to touch the focus ring or cover the infrared transmitter/receiver to avoid misfocusing.
- AUTO FOCUS works properly with almost every type of subject; manual focusing is recommended, however, when optimum focus cannot be obtained by using the AUTO FOCUS. Examples of scenes with which AUTO FOCUS may not be correct are shown in ① – ⑥ below.

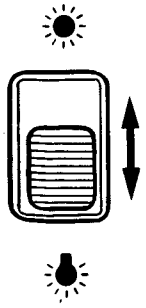
① When both close and distant objects are required to be in focus.
② When close and distant objects form a continuous perspective.
③ When the subject is a pattern of narrow horizontal stripes.
④ When the subject does not reflect light (i.e. a black curtain or water).
⑤ When the subject is too small.
⑥ When the subject is behind a glass window or screen.




**Note:** In the manual focussing mode (when full auto switch ⓯ is set to the [M] position) the focus switch ⓱ may be set to the Ⓐ or Ⓜ position and auto tracking white balance (colour temperature) is disabled.
Therefore, operate the white balance switch ⓰ to achieve the proper white balance setting.

## [6] HOW TO OPERATE THE WHITE BALANCE SWITCH

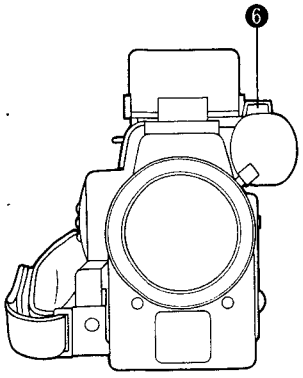
White balance switch ⓰ functions only when full auto switch ⓯ is set to the [M] position.
When full auto switch ⓯ is in the [A] position, the white balance will be automatically tracked and adjusted, regardless of the position of white balance switch ⓰ .



**☀ Position:** Set switch ⓰ to this position for outdoor (natural light) shooting; with this setting, adjustment is made for a colour temperature of about 5,500 K.

**☀ Position:** Set switch ⓰ to this position for indoor (artificial light) shooting; with this setting, adjustment is made for a colour temperature of about 3,200 K.

**Note:** Concerning white balance setting indicator ㉓ and other indicators, see page 15.




## ■ How the White Balance (Colour Temperature) Auto Tracking System Functions and How to Operate It.

When full auto switch ⑮ is set to the [A] position, this camera is designed to automatically adjust the white balance (colour temperature) setting. This allows the built-in colour temperature sensor circuit (behind the sensor window ⑥) senses and tracks the colour temperature of the lighting around the camera.
Automatic colour temperature adjustment in this camera ranges between about 3,200 K and about 5,500 K.
When the colour temperature of the lighting around the camera is about 3,200 K or less, automatic adjustment is always made for a colour temperature of about 3,200 K.
When the colour temperature of the lighting around the camera is about 5,500 K or more, automatic adjustment is always made for a colour temperature of about 5,500 K.

**Note:** In the white (colour temperature) balance auto tracking mode (when full auto switch ⑮ is set to the [A] position), iris control knob ⑲ and focus switch ⑰ do not function manually.

## Note Concerning the Use of the White Balance Auto Tracking System

Since the built-in white balance auto tracking system senses the colour temperature of the lighting around the camera instead of around the scene being shot the following are cases when a precise colour temperature adjustment cannot be obtained. In those cases, set full auto switch ⑮ to the [M] position readjusting iris control knob ⑲ and focus switch ⑰ if necessary, and then set the white balance switch ⑯ to the ☀ or ☀ position.

- The colour temperature sensor window ⑥ is covered with the hand or other object.
- The light falling on the subject being shot and the light around the camera are of different colour temperatures.
- Either the subject or the camera is in the area covered by a shadow.
- Shooting under special lighting such as mercury arc lamps, sodium vapor lamps, and special illuminating stage-lighting.
- Shooting under insufficient illumination.
- Shooting about 40 minutes after sunset or 40 minutes before sunrise.
- Shooting under other conditions when white balance adjustment is impossible for the camera.
- Shooting in combination with the VIDEO LIGHT illuminating unit (optional) (adjustment is made for a colour temperature of 3,200 K), you are recommended to set switch ⑯ to the ☀ position.
- When shooting under lighting conditions, such as those having colour temperatures like that of a white fluorescent lamp — lighting sources having colour temperatures falling between electric lights and sunshine — shifting the direction of the camera may slightly after the tint of the picture being shot.

## ■ COLOUR TEMPERATURE

Light has colour. This colour is expressed in terms of absolute temperature referred to as colour temperature. As the colour temperature of a subject rises, the colour of the light varies from red to orange, to yellow, to white and to blue.

## ■ THE IMPORTANCE OF WHITE BALANCE ADJUSTMENT

While human beings can see any object as it appears in nature with their eyes automatically adjusting to the light around them, video cameras, without a proper adjusting system, cannot. Therefore, this video camera has been provided with special filters and other internal devices and circuitry which can adjust itself to the colour temperature of the light falling on the subject you are shooting. This adjustment is usually made based on "white colour" as standard, and thus it is called white balance.

## COLOUR TEMPERATURE REFERENCE TABLE

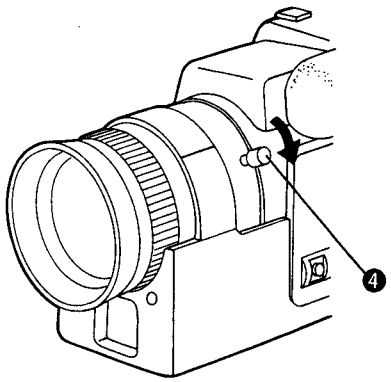
This table is a rough guide for determining colour temperatures under various shooting conditions, therefore, use this as a handy reference.

| Colour temperature of natural light (K) | Colour temperature unit: K | Colour temperature of artificial light (K) | Colours of lights |
|---|---|---|---|
| • Fair, blue sky light<br>• Slightly cloudy sky light<br>• Cloudy, rainy sky light | 10,000<br>8,000<br>7,000 | Lower the colour temperature using an amber filter<br>When WHITE BALANCE switch ⑯ is set to outdoor setting ( ☀ position). | 10,000 • Colour television<br>8,000<br>7,000 | Bluish |
| • Sunlight in fine-weather midday | 6,500<br>6,000 | | 6,500 • Fluorescent lamp (Daylight)<br>6,000 • Camera flash bulb | |
| • Average sunlight in fine weather | 5,500<br>5,000 | When FULL AUTO switch ⑮ is set to [A] position. (Range where the white balance auto tracking mechanism works.) | 5,500<br>5,000 • Blue lamp for photography | |
| • Sunlight 2 hours after sunrise and before sunset | | | • Fluorescent lamp (White) | Whitish |
| • Sunlight 1 hour after sunrise and before sunset | 4,000 | | 4,000 • Normal flash bulb | |
| | 3,500 | | 3,500 • Fluorescent lamp (Off-white)<br>• Tungsten lamp for photography | |
| • Sunlight 40 min. after sunrise and before sunset | 3,200 | When WHITE BALANCE switch ⑯ is set to indoor setting ( ☀ position). | 3,200 • Halogen lamp | |
| Sunrise Sunset | 3,000<br>2,800 | | 3,000<br>2,800 • Iodine lamp<br>• Tungsten lamp | Yellowish |
| • Sunlight 30 min. after sunrise and before sunset | 2,500 | Raise the colour temperature using a blue filter | 2,500 • Acetylene lamp | |
| • Sunlight 20 min. after sunrise and before sunset | | | • Kerosene lamp | Reddish |
| | 2,000 | | 2,000 • Candlelight | |

## 7 ZOOMING OPERATION

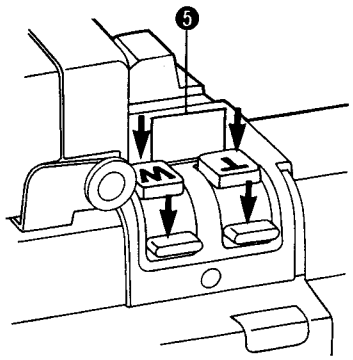
### ■ Manual zooming

Turn zoom lever ❹ clockwise or counter-clockwise for manual zooming.




### ■ Power zooming

Push buttons ❺ for power zooming.
Button T: to zoom to telephoto
Button W: to zoom to wide-angle
**Note:** Zooming is also possible by pressing down the side-tab of either button ❺.

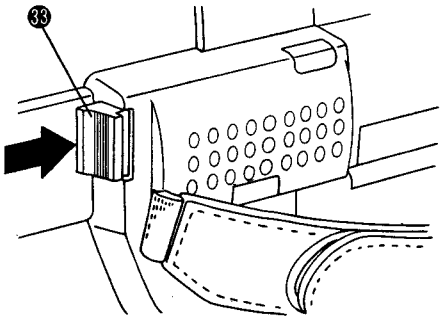



## 8 HOW TO RECORD WITH A VTR

First, set the VTR to the record pause mode.
(For details refer to the VTR's instruction manual.)

- To start recording
  Push VTR start/stop button ㉝ .
- To stop recording
  Press button ㉝ again to set the VTR to the record pause mode to stop recording.

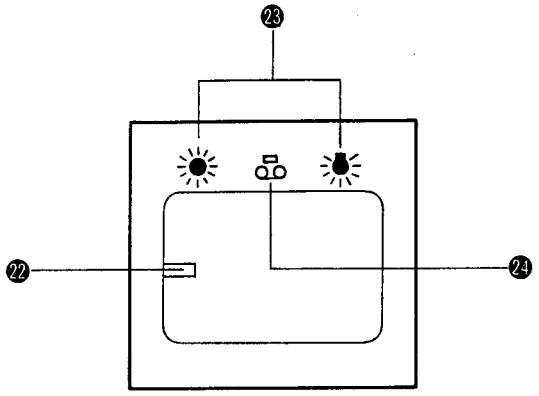
**Note:** For more information on VTR start indicator ㉔ and other indicators in the viewfinder, see page 15.




**Notes:**

1. When shooting in quiet places, sounds originating from camera operation such as the switching of controls, auto focusing and zooming can be sometimes much louder than acceptable. In such a case, replace the detachable microphone with an external one and place it as far from the camera as practical to prevent these sounds from being recorded.
2. Do not install heavy accessories (weighing more than 300 g (10.5 oz)) in the accessory shoe ⑫; this can damage the shoe.
   Be extremely careful in handling the camera when a long, extended accessory is installed in the shoe.

# VIEWFINDER INDICATORS




## Exposure indicator ㉒

Exposure indicator ㉒ is displayed on the left of the screen. This indicator moves up and down according to the exposure.
When indicator ㉒ moves:

| | | |
|---|---|---|
| UP | means | over-exposure |
| MIDDLE | means | proper exposure |
| DOWN | means | under-exposure |

## VTR START indicator ㉔

When the VTR recording is begun by pressing the VTR start/stop button ㉝ , indicator ( ) ㉔ flashes slowly (or lights continuously depending on the VTR).
Pressing VTR start/stop button ㉝ again sets the VTR to the record pause mode at which time, indicator ㉔ goes off.

**Note:** Set the polarity switch ㉗ to another position when the VTR start indicator ㉔ operates with the opposite polarity (See page 7).

## WHITE BALANCE setting indicators ㉓

When white balance switch ⑯ is set to the indoor (artificial light) position , the right ( ) viewfinder indicator ㉓ will be lit.
When set to the outdoor (natural light) position , the left ( ) viewfinder indicator ㉓ will be lit.
When full auto switch ⑮ is set to the [A] position, both lamps ( and ) will be lit.

■ **Battery Warning Indicator**

This indicator functions according to white balance setting indicator ㉓ as follows.
When the battery in the VTR becomes nearly exhausted, the ( and ) indicator lamps ㉓ flash.
When the white balance switch ⑯ is set to the indoor (artificial light) position , the right lamp ( ) flashes. When the white balance switch is set to the outdoor (natural light) position , the left lamp ( ) flashes.
When full auto switch ⑮ is set to the [A] position, both lamps ( and ) flash.

**Playback and Monitoring on the Viewfinder Screen**

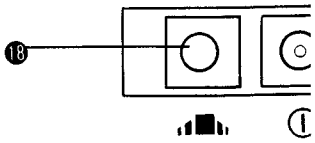
- When the camera is connected with a VTR that has a camera connection terminal, the picture which has just been recorded can be played back and monitored on the viewfinder screen. (The picture may not be played back depending on the connected VTR.)

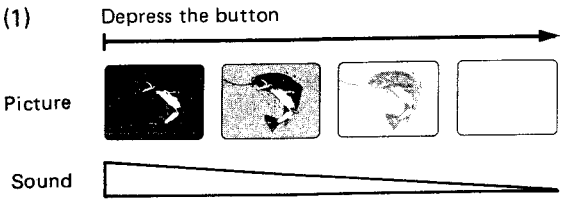
* Do not fail to cap the lens during playback, otherwise, the picture can be distorted.

# OTHER OPERATIONS

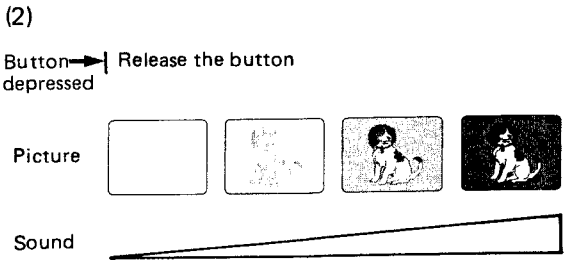
## 1 HOW TO OPERATE THE FADER BUTTON

(1) Keep fader button ⑱ depressed; the picture will gradually disappear to white, and the sound will gradually become inaudible within approximately 5 to 6 seconds.
**Note:** This operation is used for fade-outs.





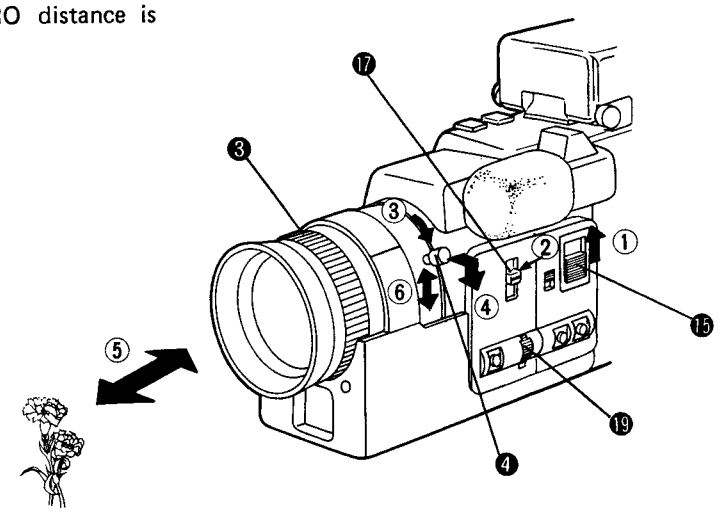

(2) Release fader button ⑱ which has been depressed; the picture will graudually emerge from a white screen, and the sound will graudally increase within approximately 7 to 8 seconds.
**Note:** This operation is used for fade-ins.




## 2 HOW TO OPERATE THE MACRO FACILITY

(1) Set full auto switch ⑮ to the M position. (see arrow ①)
Re-adjust Iris control knob ⑲ and white balance switch ⑯ if necessary.
(2) Set focus switch ⑰ to the Ⓜ position. (see arrow ②)
(3) Turn zoom lever ❹ in the direction of arrow ③ to the maximum wide-angle position.
(4) Pulling zoom lever ❹ out, turn it further to the MACRO position (see arrow ④).
(5) Adjust the distance between the camera and subject so that the image is the required size (see arrow ⑤). The minimum MACRO distance is approximately 1 centimeter.
(6) Turn the zoom lever ❹ clockwise or counter-clockwise (see arrow ④) within the MACRO range so that the subject is in focus.

**Notes:**
- Set full auto switch ⑮ to the M position.
- Set focus switch ⑰ to the manual Ⓜ position.
- When focus ring ❸ is turned, the image size varies slightly.
- When zoom lever ❹ is turned too far towards telephoto when focusing, a click will be heard and MACRO will be released.

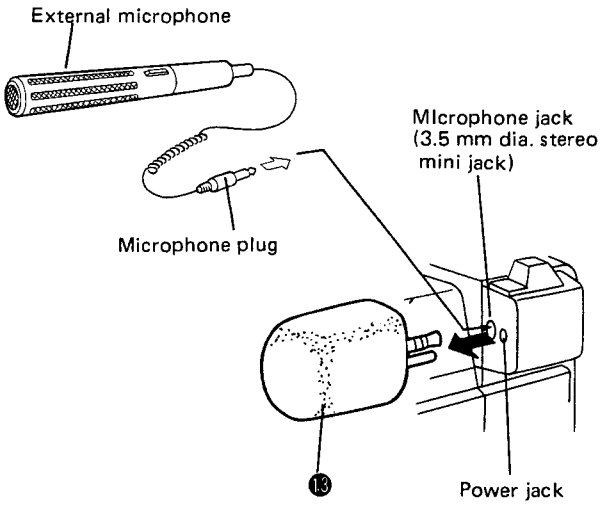


## 3 USING AN EXTERNAL MICROPHONE

(1) Pull the provided microphone ⓭ out of the microphone jack.
(2) Insert the microphone plug of an external microphone into the microphone ajck.

**Notes:**

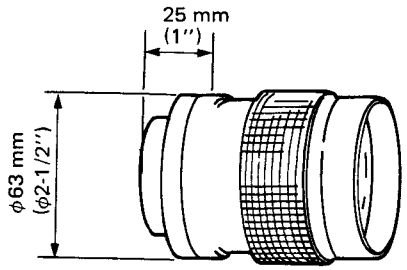
- The microphone jack is a 3.5 mm dia. stereo mini jack, but is compatible with a 3.5 mm dia. monaural mini plug.
- Some external microphones can be mounted in the accessory shoe.
- The power jack is exclusively for use with the provided microphone ⓭ . Do not insert another microphone's plug into it.
- External microphones should be of the condenser-type.




## 4 HOW TO MOUNT AND DEMOUNT LENSES

It is possible to mount interchangeable lenses originally designed for a number of SLR (single lens reflex) cameras on this video camera by using optional mount adaptors.
Five optional mount adaptors are available: model numbers LA-C7C(U) (for Canon interchangeable lenses), LA-C7L(U) (for Olympus), LA-C7M(U) (for Minolta), LA-C7N(U) (for Nikon) and LA-C7P(U) (for Pentax, bayonet mount only).
Choose the adaptor(s) appropriate for the interchangeable lenses you plan to use.

**Note:** This video camera when used in combination with an SLR lens produces approximately 5.6 times larger images than when used with an SLR camera. That is, this camera produces images with a 50 mm SLR lens as large as those produced with a 280 mm lens, when used with an SLR camera.




### Notes on Mounting an Interchangeable lenses

- Do not forget to choose the mount adaptor(s) appropriate for the interchangeable lenses.
- An interchangeable lens, having more than a 63 mm (2-1/2 inches) diameter from within 25 mm (1 inch) of the surface of the mount, will not fit on the camera because of interference with the grip band bracket.
- Many kinds of interchangeable lenses of various specifications are available at camera shops. Choose proper lenses after having carefully determined the application and performance you desire.
- The warranty does not cover the performance and quality of the camera when using it with a mounted interchangeable lens (one purchased at a camera shop).
- When the interchangeable lens has a tripod socket, screw the tripod plug into this socket.
- Also carefully read all instructions for the interchangeable lenses and mount adaptors you are using.
- When replacing the lens with an interchangeable lens for an SLR (single lens reflex) camera, follow the steps described in the instructions below.
  And for direction on adjusting the parts of the mount adaptor you are attaching to this camera, follow the steps described in the instructions for the adaptor.

## HOW TO DEMOUNT THE LENS

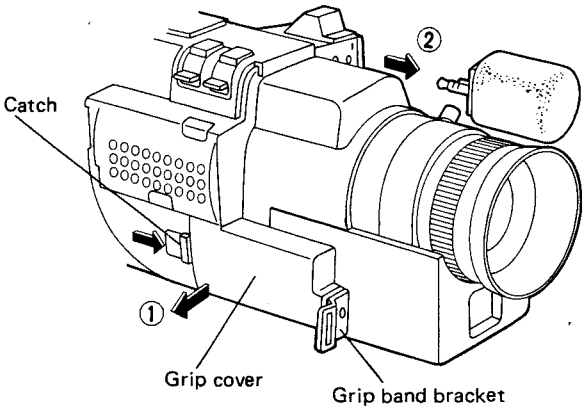
(1) While pressing the catch on the grip cover in the direction of arrow ① , pull the cover outward to remove it.
When re-mounting the grip cover, align the key on the grip cover with the groove in the grip band bracket and press the cover into the bracket.

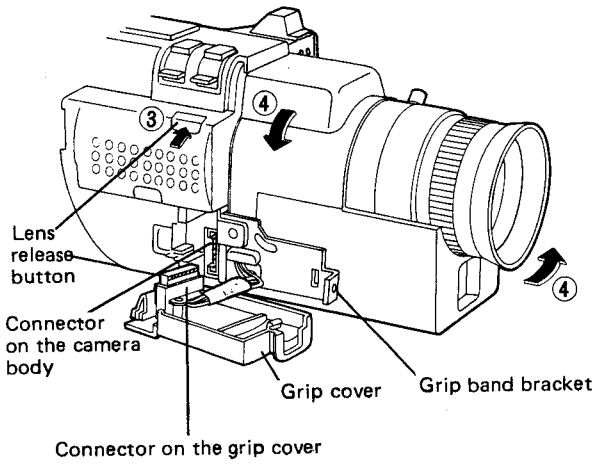
(2) Remove the microphone from the body. (see arrow ② )
To install the microphone, simultaneously insert the microphone plug into the MIC jack and the power plug into the power jack.

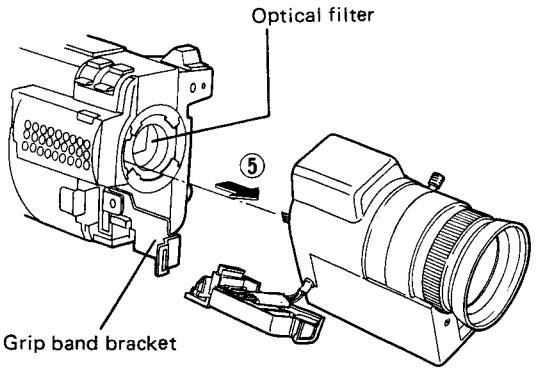
(3) While pressing lens release button ㉕ (see arrow ③ ), turn the lens counterclockwise about 30° (see arrow ④ ), and pull the lens forward to remove it (see arrow ⑤ ). If the lens release button ㉕ does not press in easily, turn the lens clockwise slightly and press it in again.
To mount the lens, align the keys of the lens mount adaptor's camera-fixing mount with the grooves in the camera body mounting base, press the mount adaptor into the grooves in the mounting base, and turn the lens clockwise about 30° until it locks.

### ■ Notes on Demounting the Lens

- When a tripod or a shooting strap (SS-C7U) is attached to the camera, it is impossible to replace the lens because they prevent the lens from being turned.
- Never touch the surfaces of the lens or optical filter. Be extremely careful not to allow the surfaces of the lens and optical filter to get dusty or dirty.
- Prevent strong light from shining directly on the surface of the optical filter.
- Protect the detached lens by covering the front with the provided lens cap and the rear with the dust cap (provided with the optional lens mount adaptor).



## HOW TO MOUNT AN INTERCHANGEABLE LENS FOR SLR CAMERA

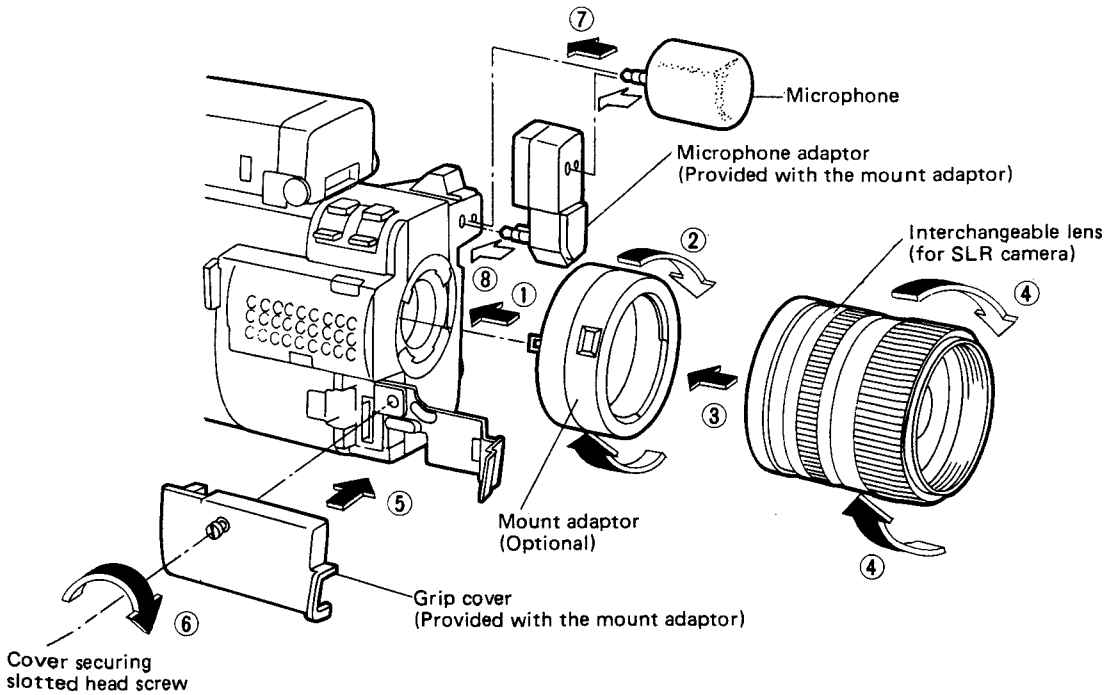
(1) First choose the optional mount adaptor appropriate for the interchangeable lens you plan to use and align the keys ( ⏃ ) on the mount adaptor's camera fixing mount with the grooves ( ⏃ ) in the camera body's front plate, then insert the adaptor into the grooves. Turn the inserted mount adaptor clockwise approximately 30° until it locks. (see arrows ① and ②)
To demount the mount adaptor, turn the mount adaptor counterclockwise about 30° while pressing in lens release button ㉕ , then pull the adaptor forward and horizontal to the camera to remove it. If lens release button ㉕ does not press in easily, try turning the mount adaptor clockwise slightly, and press it in again.

(2) Align the grooves in the mount adaptor's lens securing mount with the keys on the interchangeable lens' rear plate, insert the lens into the grooves, and turn the lens clockwise or counterclockwise (depending on the type) to lock them together. For interchangeable lenses from Canon, Minolta, Olympus and Pentax, turn them clockwide. For lenses from Nikon, turn them counterclockwise. (see arrows ③ and ④)
**Note:**
When installing a Canon interchangeable lens to the mount adaptor, a lever stopper should be used. This lever stopper is provided only with mount adaptor LA-C7C(U) (exclusively for use with Canon SLR cameras). For directions on use of this lever stopper, refer to the instructions for the mount adaptor.
To remove the interchangeable lens from the mount adaptor, press in the lens release button, then rotate the lens in the opposite direction as it was mounted.
The lens release button is provided on lens mount adaptors LA-C7M(U), LA-C7N(U) and LA-C7P(U), but not provided on LA-C7C(U) and LA-C7L(U). Instead, the matching interchangeable lenses each have their own lens release buttons.

(3) Before shooting, check that the lens adaptor's flange focal distance adjustment and camera fixing mount position adjustment have been correctly made.
For more information, refer to the instructions for the mount adaptor.
(Once these adjustments have been made, no further adjustment will be necessary as long as the same interchangeable lens is used with the adaptor.)

(4) Attach the grip cover to the mount adaptor and secure them with the cover securing screw. (see arrows ⑤ and ⑥ )
When removing the grip cover, disengage the screw as far as it will go. (The screw can not be removed from the grip cover.)

(5) Install the provided microphone on the camera.
If it should be impossible to install the microphone because of the interchangeable lens, use the microphone adaptor (provided with the mount adaptor). (see arrows ⑦ and ⑧ )
When removing the microphone, pull it out horizontally.



## ■ How to Operate the Camera after Installing an Interchangeable Lens

- The functions that operate in conjunction with the standard lens will be lost when the interchangeable lens is installed on this camera.
- Therefore, full auto switch ⓯ serves only as a white balance (colour temperature) control, and does not serve as an iris control or a focus control.
- This video camera when used in combination with an SLR lens produces approximately 5.6 times larger images than when used with an SLR camera. That is, this camera produces images with a 50 mm SLR lens as large as those produced with a 280 mm lens, when used with an SLR camera.
- If the colour temperature sensor window ❻ should be obscured fully or partly by the microphone adaptor (provided with the mount adaptor) or by the interchangeable lens newly installed, the white balance (colour temperature) auto tracking mechanism will not work properly.

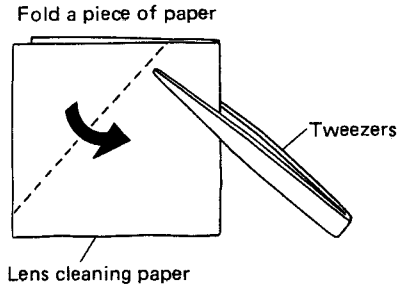
  In such case, set full auto switch ⓯ to the Ⓜ position and set white balance switch ⓰ to the ☀ or ☀ position.
- Manually adjust the iris of the installed interchangeable lens while watching the exposure indicator in the viewfinder.
- With some interchangeable lenses installed, it may be impossible to adjust the iris properly in areas where the sun is shining too brightly on the subject. In such cases, attach a ND (neutral density) filter on the lens.
- Manually adjust the focus using the focus ring on the installed interchangeable lens while looking through the viewfinder.
- Zoom buttons ❺ operate power zoom function only with the provided lens.

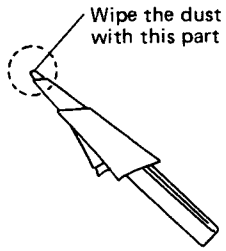
## HOW TO CLEAN LENSES

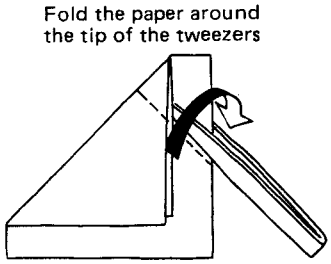
When the surfaces of the lens and optical filter become dusty, blow it off with a blower or sweep it off with a soft, clean brush.

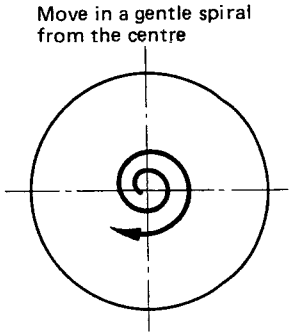
For cleaning the lens, fold a piece of lens cleaning paper (available on the market) around the tip of a tweezers, moisten the tip with a lens cleaning solution (available on the market), then wipe the dust off the surfaces of the lens and optical filter, moving in a gentle spiral from the centre of the lens.

**Notes:** • Use alcohol-based lens cleaning solution.
• Do not wipe the lens violently.



## 5 HOW TO INSTALL THE CHARACTER GENERATOR CG-C7E (OPTIONAL)

- An optional character generator can be installed on this video camera. When this generator is installed, it is possible to superimpose titles, dates, and stopwatch read-outs over the video picture.
  **Note:**
  Read the instructions of the character generator carefully. For connection, refer to the following instructions.

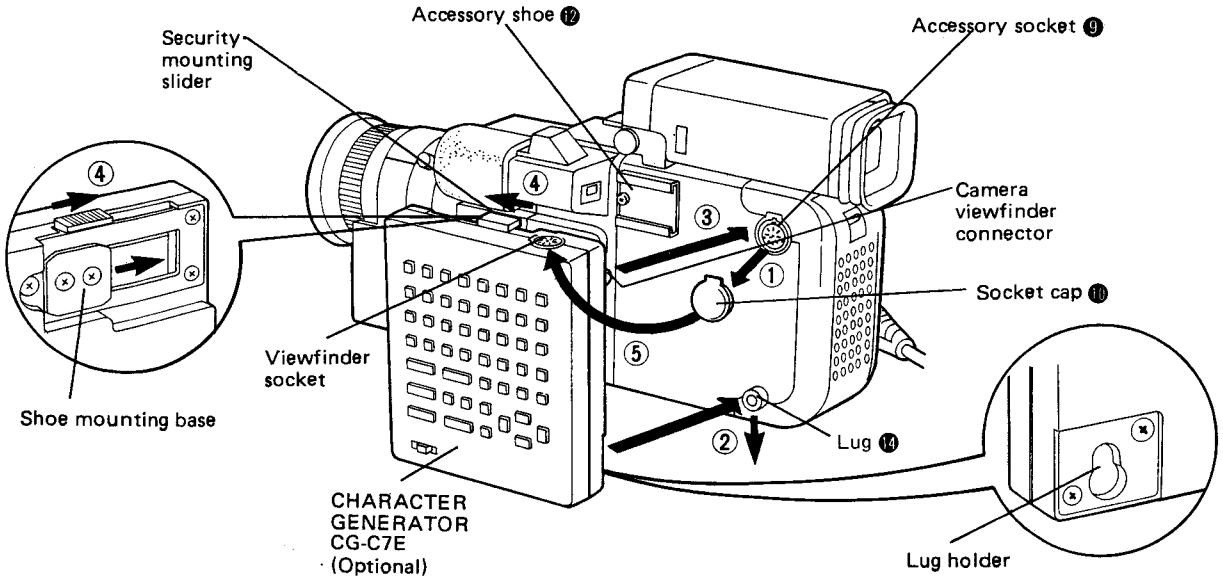
(1) Remove socket cap ⑩ covering accessory socket ⑨ . (see arrow ①)
When the character generator is not installed, be sure to re-cover accessory socket ⑨ with socket cap ⑩ .

(2) Align the character generator's lug holder over the lug ⑭ on the camera, then shift the lug holder down into position. (see arrow ②)

(3) Press the character generator's camera viewfinder connector into accessory socket ⑨ . (see arrow ③)

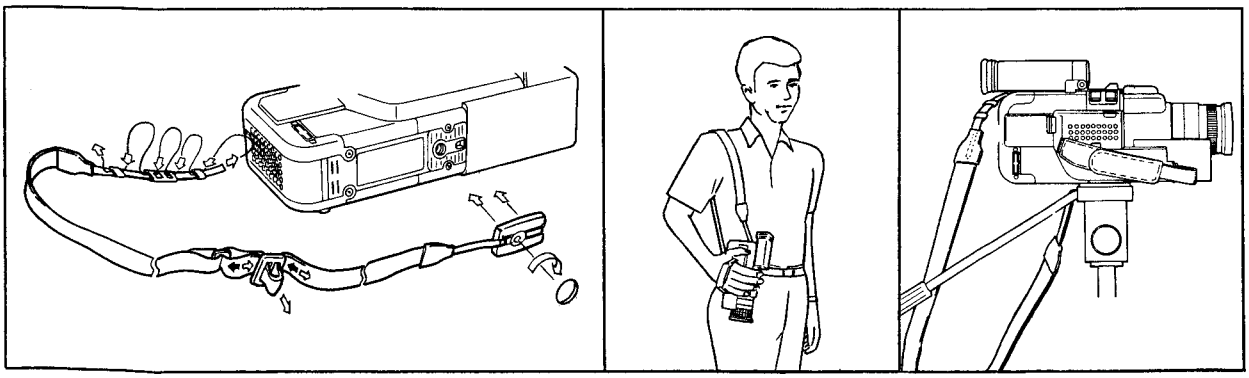
(4) While pressing the upper left part of the unit firmly against the camera body, slide the security mounting slider fully forward allowing the shoe mounting base to lock onto the camera accessory shoe ⑫ . (see arrow ④)

(5) Attach socket cap ⑩ , removed in step (1) above, to the unused character generator viewfinder socket. (see arrow ⑤)




## 6 HOW TO MOUNT THE SHOOTING STRAP SS-C7U (OPTIONAL)

- The optional shooting strap can be attached to this camera. When it is attached, the camera can be hung from your shoulder. Therefore, it is very convenient in outdoor shooting where the camera is carried around. It is possible to install the camera on a tripod even with the shooting strap attached.



# SPECIFICATIONS

| | |
|---|---|
| Type | : Colour Video Camera |
| System | : Step-energy decoding system (single tube) |
| Signal system | : Based on PAL standard |
| Pickup tube | : 1/2" Newvicon |
| Scanning | : 625 lines, 2:1 interlaced |
| Resolution | : 300 lines or more (horizontal)<br>300 lines or more (vertical) |
| Synchronizing system | : Internal sync |
| Video output | : 1 Vp-p, 75 Ω unbalanced (sync negative) |
| Video S/N ratio | : 45 dB or more |
| Audio output | : 77.5 m Vrms (-20 dBs) Impedance 1 kΩ, 2 channels |
| Minimum illumination | : 10 lux (1 fc) (when the full auto switch is set to [A] excluding extreme telephoto setting) |
| Illumination range | : 10 – 100,000 lux (1 fc – 10,000 fc) (in auto iris mode) |
| Minimum optimum illumination of subject being shot | : 500 lux (50 fc) |
| Colour temperature setting | : ① Outdoor (natural light) setting ( ☀ : About 5,500 K)<br>② Indoor (artificial light) setting ( 💡 : About 3,200 K)<br>③ White balance auto tracking settings (about 3,200 K to 5,500 K) |
| Provided microphone | : Stereo microphone (condenser-type) |
| Microphone jack | : 0.28 m Vrms (-68.79 dBs), high impedance, 2 channels (3.5 mm dia. stereo mini jack) |
| Viewfinder | : Electronic viewfinder (CRT. 1/2" black-and-white) |
| Lens | : F1.2<br>f = 8.5 – 51 mm, 6:1 power zoom, Filter mounting screw dia. 46 mm, Auto iris control, Macro mechanism, Auto-focus |
| ZOOM min. distance | : Approx. 1 meter |
| MACRO min. distance | : Approx. 1 centimeter |
| Lens mount | : Special bayonet mount |
| Power source | : DC 12 V |
| Power consumption | : 6.0 W |
| Operating temperature range | : 0°C – 40°C |
| Weight | : 1.06 kg (2.33 lbs) (excluding camera cable and lens cap) |
| Accessories (included with camera) | : Stereo microphone<br>Camera cable<br>Lens cap<br>Lens hood<br>EVF rubber eye cup |

* Design and specifications subject to change without notice.
* This colour video camera is designed to output video signals conforming with the PAL standard. Thus, this camera is not usable for VTRs or colour television units which use colour signal systems other than the PAL standard.

**DIMENSIONS** Unit: mm (inches)